UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,208	01/05/2001	David P. Harris	5377-7	5301

7590 06/03/2004	EXAMINER
Mr. David Harris	ASSOUAD, PATRICK J

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ART UNIT	PAPER NUMBER
2857	

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/755,208	HARRIS ET AL.
	Examiner	Art Unit
	Patrick J Assouad	2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ___3___ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-32* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) *8-19* is/are allowed.

6) ☒ Claim(s) *1,20-32* is/are rejected.

7) ☒ Claim(s) *2-7* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6/11/07* .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Information Disclosure Statement

1.   The information disclosure statement filed 9/11/02 fails to comply with 37 CFR

1.98(a)(1), which requires a list of all patents, publications, or other information

submitted for consideration by the Office. It has been placed in the application file, but

the information referred to therein has not been considered. Applicant should submit

the list in the form of a PTO-Form 1449.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3.   Claims 21-32 appear to have numerous dependency problems; for example,

claim 21 should depend from claim 20, not claim 13.   There is insufficient antecedent

basis for the numerous limitations in these dependent claims. A thorough check of

these claims is required.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   Claims 1 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by

Chen et al. ('877 B1) published 10/15/02 with effective priority to 9/15/99.

6.   **Chen et al.** disclose :

A system and method for predicting web breaks in a paper machine. Principal
components analysis (PCA) and classification and regression tree (CART)
modeling are used to predict web break sensitivity from sensor measurements
taken from the paper machine. Also, the CART model is used to isolate the root
cause of the predicted web break sensitivity.   (Abstract)

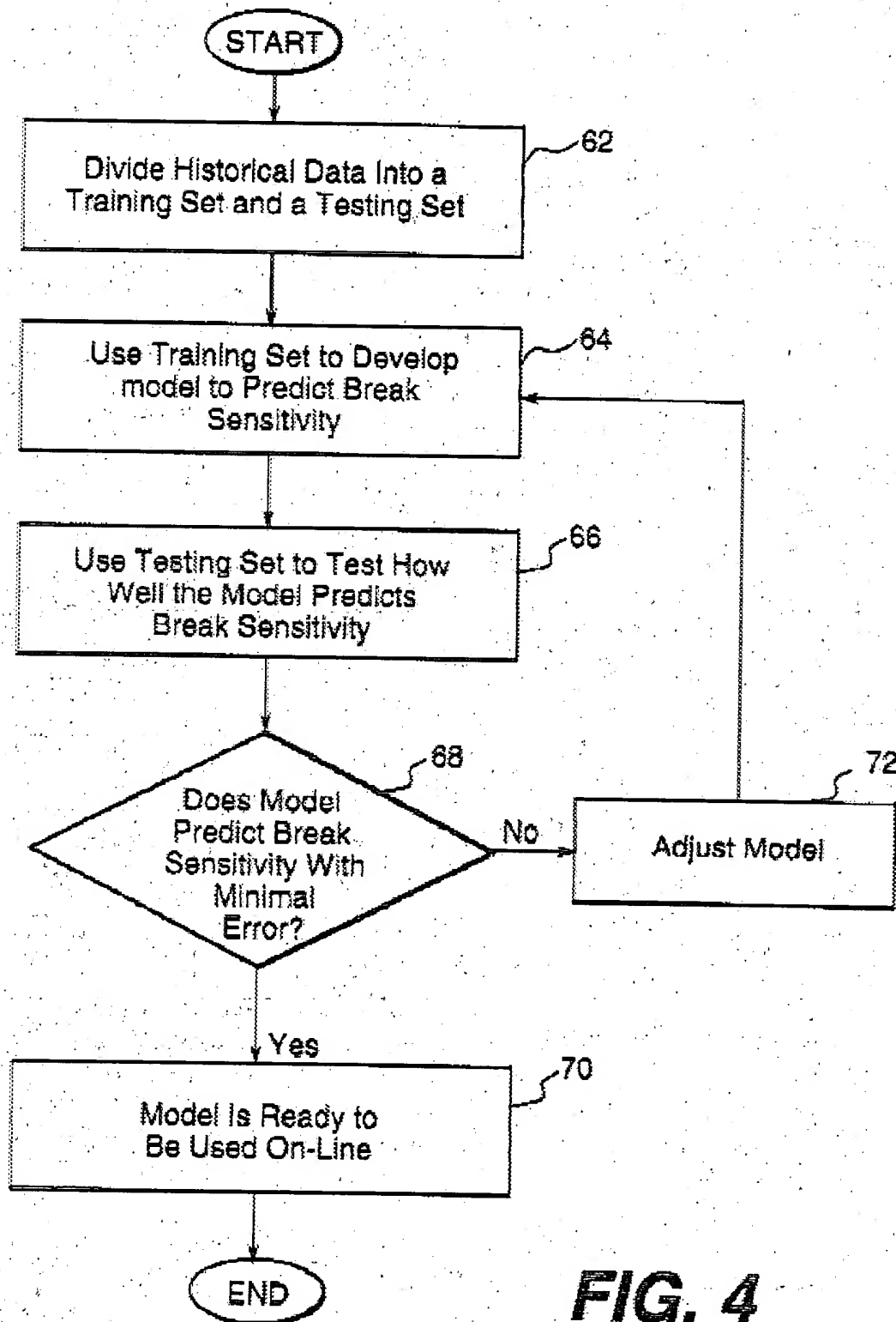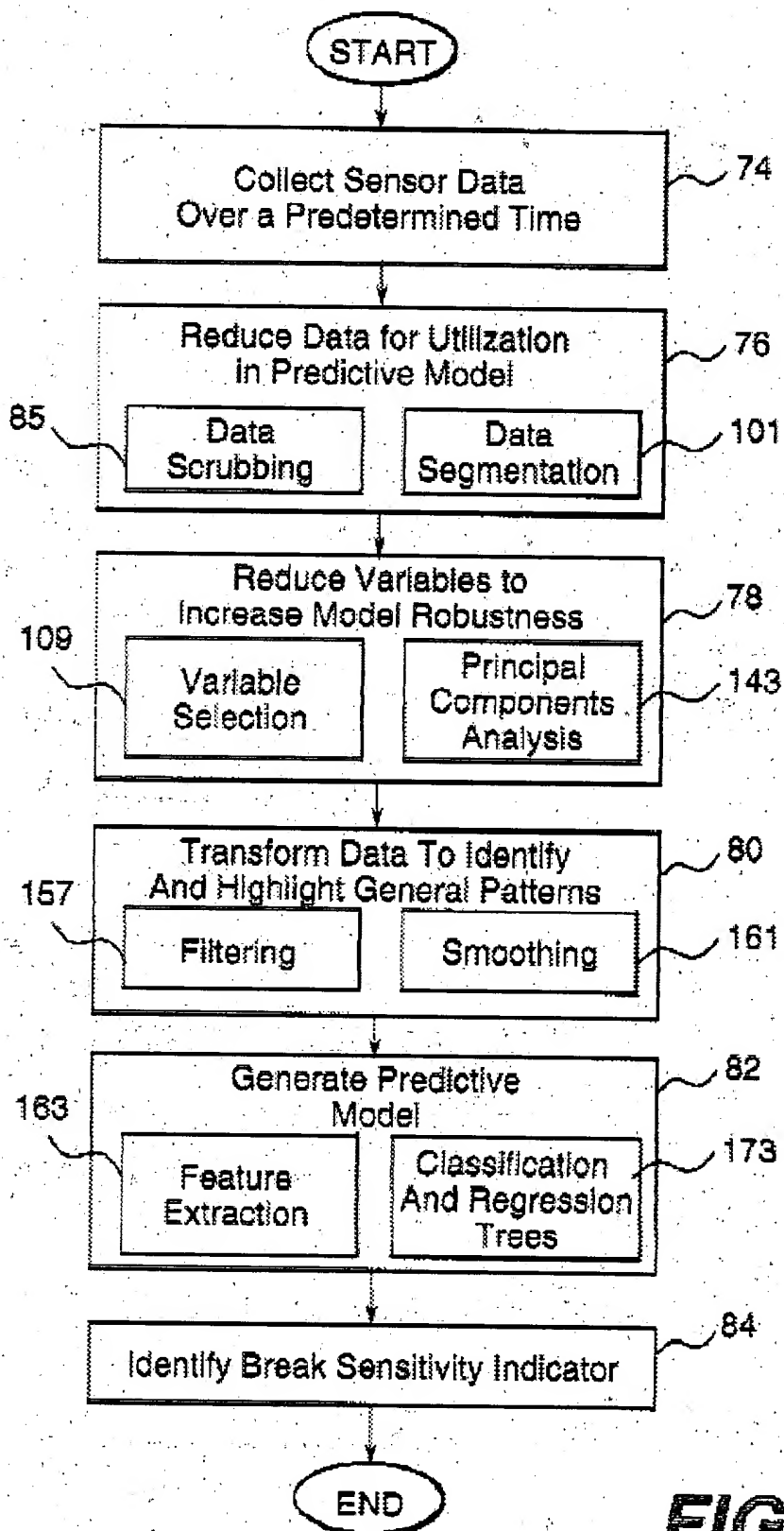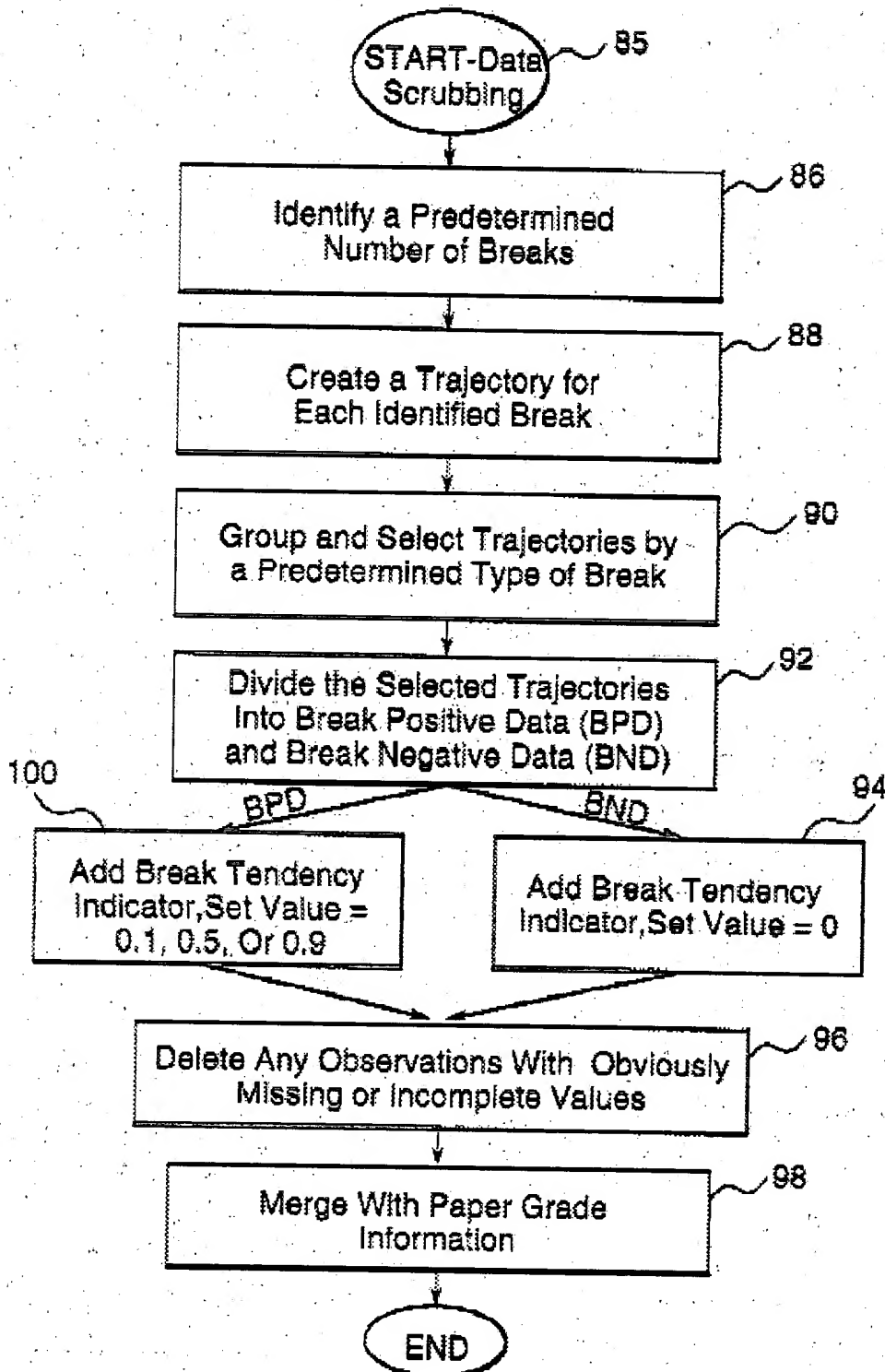Figs. 4-6 of **Chen et al.** are reproduced below.

```
                        ( START )
                            |
                            v
        +-----------------------------------+
        |  Divide Historical Data Into a    |----- 62
        |  Training Set and a Testing Set   |
        +-----------------------------------+
                            |
                            v
        +-----------------------------------+
        |  Use Training Set to Develop      |----- 64
        |  model to Predict Break           |<-----------+
        |  Sensitivity                      |            |
        +-----------------------------------+            |
                            |                            |
                            v                            |
        +-----------------------------------+            |
        |  Use Testing Set to Test How      |----- 66    |
        |  Well the Model Predicts          |            |
        |  Break Sensitivity                |            |
        +-----------------------------------+            |
                            |                            |
                            v                            |
                      /-----------\                      |
                     /  Does Model \          No   +-----------+
                    /   Predict Break\------------>| Adjust Model |---72
                    \  Sensitivity With/           +-----------+
                     \    Minimal     /     68
                      \    Error?    /
                       \-----------/
                            |
                           Yes
                            v
        +-----------------------------------+
        |  Model Is Ready to                |----- 70
        |  Be Used On-Line                  |
        +-----------------------------------+
                            |
                            v
                        ( END )
```

FIG. 4

START

| Collect Sensor Data Over a Predetermined Time | 74 |

| Reduce Data for Utilization in Predictive Model | 76 |
| Data Scrubbing (85) | Data Segmentation (101) |

| Reduce Variables to Increase Model Robustness | 78 |
| Variable Selection (109) | Principal Components Analysis (143) |

| Transform Data To Identify And Highlight General Patterns | 80 |
| Filtering (157) | Smoothing (161) |

| Generate Predictive Model | 82 |
| Feature Extraction (163) | Classification And Regression Trees (173) |

| Identify Break Sensitivity Indicator | 84 |

END

FIG. 5

START-Data Scrubbing — 85

Identify a Predetermined Number of Breaks — 86

Create a Trajectory for Each Identified Break — 88

Group and Select Trajectories by a Predetermined Type of Break — 90

Divide the Selected Trajectories Into Break Positive Data (BPD) and Break Negative Data (BND) — 92

100 — BPD — Add Break Tendency Indicator, Set Value = 0.1, 0.5, Or 0.9

BND — 94 — Add Break Tendency Indicator, Set Value = 0

Delete Any Observations With Obviously Missing or Incomplete Values — 96

Merge With Paper Grade Information — 98

END

FIG. 6

7.   We clearly see from at least the above-reproduced Figures the claimed

"receiving a first set...", "creating a predictive model...", receiving a second set...", and

"applying the predictive model...".   Note, the Examiner specifically interprets and

correlates the instant claimed "data sets" with the (plural) historical data sets of **Chen et**

al. Also most notable are the "break sensitivity" adjustment of Chen et al.   With

respect to the specifically claimed "prediction window", we can turn to col. 6 of **Chen et**

al. partially reproduced below:

A predetermined number of web breaks are identified at 86. In the preferred embodiment, all of the web breaks are identified, although a smaller sample size may be used. For each web break, a trajectory of data is created over a predetermined window at 88. The size of the predetermined window may vary depending on the desired accuracy of the predictive model and on the typical length of the break trajectory data. For example, break trajectory windows of 1 hour to 1 day may be utilized, although preferred window sizes include 60, 120, 180 and 240 minutes. These trajectories are grouped by a predetermined type of break, and one of the groups may be selected for further processing at 90. For example, in the preferred embodiment there are four major groups of breaks, however, only breaks corresponding to situations defined as "unknown causes" are evaluated. The other major groups include breaks with known causes, where the problem is easier to solve and thus less attractive for predictive modeling. As a result, data relating to the known causes groups are taken out of the analysis. Thus, for example, the historical data can be reduced to 433 break trajectories, containing 443,273 observations and 46 variables.
     Once the data relating to a selected group of trajectories, such as unknown causes, is defined, the selected break trajectory data is divided into a predetermined number of groups at 92. For example, the data may be divided into two groups to distinguish data associated with an imminent break from data associated with a stable operation. One skilled in the art will realize, however, that the data may be grouped in numerous other gradiations in relation to the break. Utilizing two groups, the first group contains the set of observations taken within a predetermined pre-break to break time window, such as 60 minutes prior to the break to the moment of the break. This data set is denoted as break positive data and, in the preferred embodiment, contains 199,377 observations and 46 variables. The remaining data set, containing the set of observations greater than 60 minutes prior to the break, is denoted as break negative data. In the preferred embodiment, the break negative data contains 243,896 observations and 46 variables. The data collected after the moment of the break is discarded, since it is already known that the web has broken.
     In the break negative data, a break tendency indicator variable is added

to the data and assigned a value of 0 at 94. The break indicator value of 0 denotes that a break did not occur within the data set. Further, any incomplete observations and obviously missing values are deleted at 96. Additionally, the break negative data is merged with data representing a paper grade variable at 98. For example, in a preferred embodiment, this yields a final set of break negative data containing 233,626 observations and 47 variables.

In the break positive data, a predetermined break sensitivity indicator variable is added to the data at 100. For example, using the 60 minute pre-break to break time window, the break sensitivity indicator is assigned a value of 0.1, 0.5 or 0.9, respectively, corresponding to the first, middle or last 20 minutes of the break trajectory. These break sensitivity indicator values represent a low, medium and high break possibility, respectively. As one skilled in the art will realize, the number and value of the break sensitivity indicators may vary based on the application. Further, any incomplete observations and obviously missing values are deleted at 96. Also, only the first data point corresponding to the break is included in the data set for each break trajectory. This allows each break trajectory data set to only include relevant data prior to the break. Additionally, the break positive data is merged with data representing a paper grade variable at 98. For example, this yields a final set of break positive data containing 26,453 observations and 47 variables. Thus, by performing data scrubbing, two data sets--break positive data and break negative data--are created and are used throughout the remainder of the process. [emphasis added]

Allowable Subject Matter

8.   Claims 8-19 are allowed.

9.   Claims 2-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
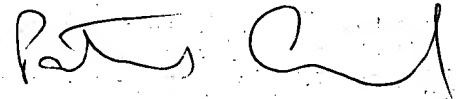
Conclusion

10.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.   See the attached PTO-892.

11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J Assouad whose telephone number is 571-272-2210. The examiner can normally be reached on Tues-Friday 6:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S Hoff can be reached on 571-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick J Assouad
Primary Examiner
Art Unit 2857

pja